



Dart Aerospace Ltd.
1270 Aberdeen St
Hawkesbury, ON
K6A 1K7
Canada

Tel (613) 632-5200

D119-796-141TRN
Job Sheet 169254



Part No: D119-796-141TRN

Job Qty: 1 ea

Part Name: Crosstube Turning Detail



Part Weight: 0 lbs

Status: Scheduled

Priority: Medium

Job Created: 12/5/17

Job Tracking No:

Due Date: 12/15/17

Created By: Marie Lajeunesse

Type: Stock

Description:

Ship Via:

DAS
10
9-89
REV. H

Bill of Materials

Job Routing

Op No	Operation	Qty	Start Date	Due Date	Standard		Workcenter/Supplier		Sign-off
					Setup hrs	Run Hrs	Workcenter / Supplier	Lead Time	
90	Start up Operation	1 Ea		12/14/17	0.00	0.00	Start Up Crosstubes-1		PMP
100	Mori Seiki	1 pcs		12/14/17	1.99	1.52	Mori Seiki TL-40		PMP
110	QC	1 pcs		12/14/17	0.00	0.00	QC2		PMP
120	Mori Seiki	1 pcs		12/14/17	0.00	1.52	Mori Seiki TL-40		PMP
130	QC	1 pcs		12/14/17	0.00	0.00	QC2		DAS PMP
140	QC	1 pcs		12/14/17	0.00	0.00	QC8		47 12-29
145	Crosstubes	1 pcs		12/14/17	0.00	0.33	Crosstubes-1		9-89 GP
150	HandFXtube	1 pcs		12/15/17	0.00	0.40	Crosstubes-3		18-03-01
160	QC	1 pcs		12/15/17	0.00	0.00	QC7-1		DPZ
170	Packaging	1 pcs		12/15/17	0.00	0.00	Packaging3-1		DAS DPZ
180	QC21-FG	1 Ea		12/15/17	0.00	0.00	QC21		21 MAR 05 2018

Part Op 100 - 1-Fill tube with sand & install plugs on both ends as per Folio FB316 2-Turn first side as per Folio FB316 3-Blend
Descriptions: transition lines only, **do not sand whole tube**: FOLIO REV: AA DWG REV: H *Use mill bastard
file, brush file repeatedly with file card. *Do not use sandpaper coarser than 320 grit.

120 - 1-Turn second side as per Folio FB316 2-Blend transition lines only, **do not sand whole tube**: 3-Remove sand
and plugs 4- scribe batch # and part # as per dwg

145 - GRIND ONLY TRANSITION LINES SMOOTH LONGITUDE WAY.

150 - 1- handfinish X-TUBE INSIDE AND OUT 2- ALODINE AND ACID ETCH X-TUBE INSIDE AND OUT. USE RED
SCOTCH BRITE

170 - LOCATION : LG014

Job Allocations

Operation	Component Part	Required	Inventory	Allocated	Std Qty
90-Start up Operation	D6024-103	1	21	0	0

B150 732

Part Specifications

Specifications could not be found.

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____

DISPOSITION

Rework ☐
 Scrap ☐
 As-is ☐
 Rejected ☐

Skid-tube ☐
 Machining ☐
 Thermoforming ☐
 Large Fab ☐

Cross tube ☐
 Small Fab ☐
 Finishing ☐
 Composite ☐

Water Jet ☐
 Prod. Eng. Coord. ☐
 Rec/Store/Packaging ☐
 Supplier ☐

Engineering ☐
 Quality ☐
 Other ☐

QTY Effective : _____

MRB (QSI042) Approval

Disposition

Completed By

Lead hand / Supervisor
Approval VerificationQC / QA Coordinator
Approval

Mfg Date: 12/12/17
 Job No: 169254

FAULT CATEGORY

☐ Temperature/Cure
☐ Set-up
☐ BOM/Route
☐ Broken/Damage/Defect
☐ Inspection Incomplete/Unqualified
☐ Contamination
☐ Countersink
☐ Cut Too Short
☐ Instructions Incomplete/Unclear
☐ Drill Holes

☐ Power Loss/Surge
☐ Folio/Program
☐ Grain
☐ Weld
☐ Wrong Stock Pulled
☐ Out of Sequence
☐ Off-set
☐ Misabeled
☐ Fit/Function
☐ Misaligned/off center

☐ Positioned Wrong
☐ Outside Dimensions
☐ Over/Under tolerance
☐ Part Incorrect
☐ Part Lost/Missing
☐ Part Moved
☐ Drawing
☐ Finish
☐ Misread
☐ Turning Sequence

Misidentified ☐Past Due ☐

OTHER : _____

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 Email: sales@dartaero.com
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DART
 AEROSPACE
S020257



Crosstube Turning Detail

PART NO: D119-796-141TRN

Revision:

Operation: Start up Operation

Change No:

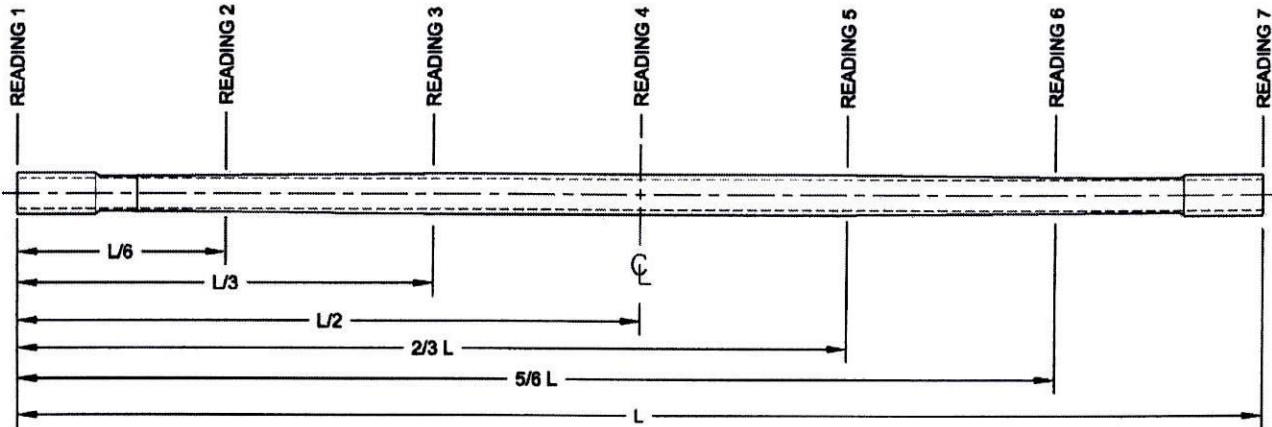
DART AEROSPACE LTD		Work Order: 169257
Description: Crosstube Assembly (AW119 MKII Fwd)		Part Number: D119-796-141TRN
Inspection Dwg: D119-796-141 Rev: H		Page 1 of 2

FIRST ARTICLE INSPECTION CHECKLIST

Inspection Sheet Drawing Dimension		Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments	
SIDE A	6.00	+/-0.030	6.005	✓		VERNO8 ↓		
	2.516	+/-0.005	2.5185	✓				
	2.333	+0.005/-0.000	2.338	✓				
	2.333	+0.005/-0.000	2.338	✓				
	2.408	+0.005/-0.000	2.412	✓				
	2.502	+0.005/-0.000	2.506	✓				
	2.596	+0.005/-0.000	2.599	✓				
	2.596	+0.005/-0.000	2.600	✓				
SIDE B	6.00	+/-0.030	6.008	✓		↓		
	2.516	+/-0.005	2.519	✓				
	2.333	+0.005/-0.000	2.338	✓				
	2.333	+0.005/-0.000	2.338	✓				
	2.408	+0.005/-0.000	2.412	✓				
	2.502	+0.005/-0.000	2.506	✓				
	2.596	+0.005/-0.000	2.599	✓				
	2.596	+0.005/-0.000	2.600	✓				
	102.26	+/-0.020	102.26	✓		TAPE		

DART AEROSPACE LTD	Work Order: 169254
Description: Crosstube Assembly (AW119 MKII Fwd)	Part Number: D119-796-141TRN
Inspection Dwg: D119-796-141 Rev: H	Page 2 of 2

WALL THICKNESS MEASUREMENT



Location	WALL THICKNESS MEASUREMENT (IN)				Deviation Δw (max-min)	TOLERANCE
	w1	w2	w3	w4		
READING 1 L= 0"	249	249	258	256	.009	0.030"
READING 2 L= 17.04	173	165	174	177	.012	
READING 3 L= 34.09	262	259	265	267	.008	0.063"
READING 4 L= 51.13	289	287	294	293	.007	
READING 5 L= 68.17	262	259	265	267	.008	
READING 6 L= 85.22	170	169	178	176	.009	0.030"
READING 7 L= 102.26	252	246	251	258	.012	

Calibration Result

Actual Block Thickness: 100-300

Sitescan 250 Measured Thickness: 100-300

DAS
47

Measured by: PMP
Date: 2017-12-12

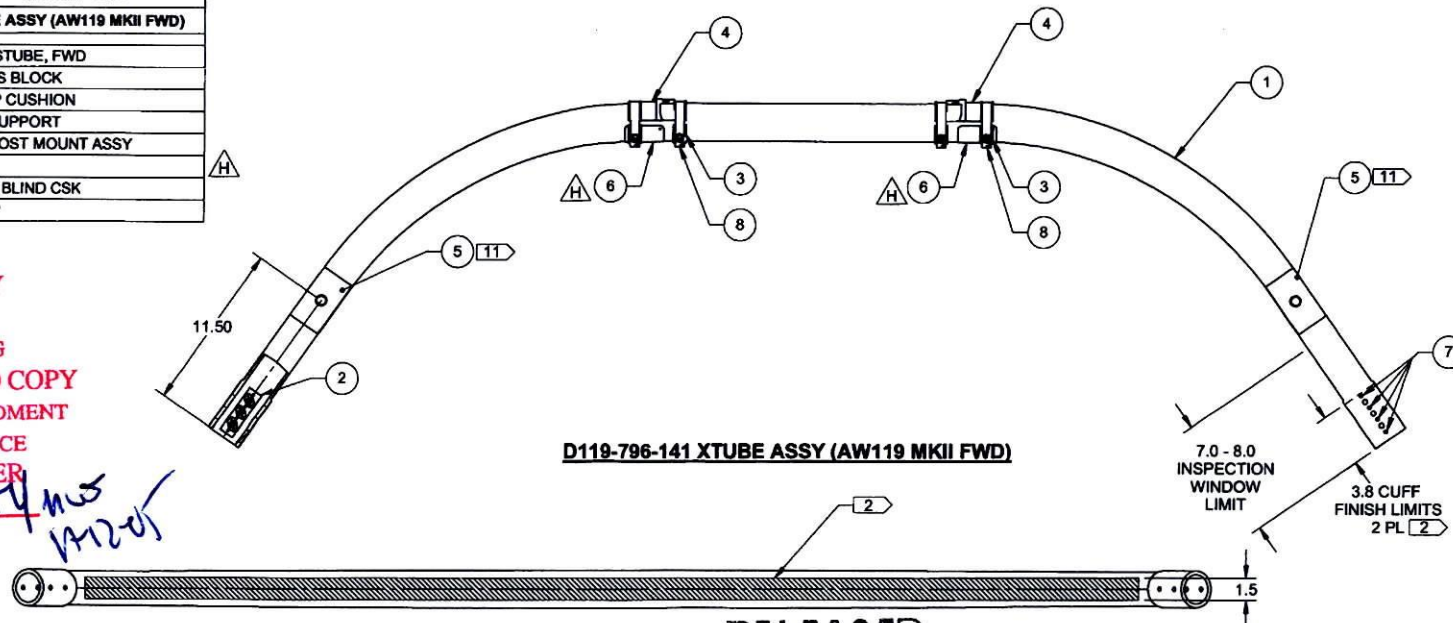
Audited by: 9-89
Date: 17-12-29

Preliminary Approval:
Date:

Rev	Date	Change	Revised by	Approved
A	15.04.14	New Issue (P/O D119-796-101)	KJ	
B	15.05.14	Tolerances revised per Dwg Rev G	KJ	
C	16.05.27	Dwg Rev updated	KJ	
D	16.09.13	Tolerance revised for Reading 3, 6 & 7	KJ	

ITEM	QTY	P/N	DESCRIPTION
	X	D119-796-141	XTUBE ASSY (AW119 MKII FWD)
1	1	D119-796-141BND	CROSSTUBE, FWD
2	4	D2873-043	RADIUS BLOCK
3	4	D5123-3	CLAMP CUSHION
4	2	D5124-1	FWD SUPPORT
5	2	D5152-041	FWD POST MOUNT ASSY
6	2	D5305-1	SHIM
7	16	CR3212-4-08	RIVET, BLIND CSK
8	4	MS21920-24	CLAMP

SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 160254 mcs
1/12/05



RELEASED
2015-11-04
EW 15-642

NOTES:

- 1) MATERIAL: N/A
- 2) FINISH: APPLY MATTE CLEAR COAT PER QSI 005 4.2
MASK D5124-1 FWD SUPPORTS, D5305-1 SHIMS AS WELL AS UNDERSIDE OF CROSSTUBE AS SHOWN (B3-1, HATCHED AREA),
PAINT OUTSIDE PER DART QSI 005 4.2 AFTER APPLYING CLEAR COAT
DO NOT APPLY FINISH (PAINT OR CLEAR COAT) TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: N/A
- 6) IDENTIFICATION: IDENTIFY USING PART NUMBER "D119-796-141" AND BATCH NUMBER ON INSIDE OF CUFF PER QSI 044 6.4
- 7) WEIGHT: 18.54 lbs
- 8) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE.
THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS.
DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.
- 9) PRIOR TO FINISHING, ABRASE MATING SURFACES OF D5124-1 FWD SUPPORTS AND CROSSTUBE WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'NWIPE DEGREASER. APPLY A 0.1 MIN THK LAYER OF PROSEAL 890 ON THE INSIDE CONCAVE SURFACE OF THE D5124-1 FWD SUPPORTS AND INSTALL AT AN 8.4" OFFSET FROM THE CROSSTUBE BENDING PLANE. INSTALL THE MS21920-24 CLAMPS AND D5123-3 CLAMP CUSHIONS WHILE WET.
- 10) TORQUE MS21920 CLAMPS 80 - 100 IN-LB. ENSURE AT LEAST 1.5 THREADS SHOWING IN SAFETY, THE NUT IS FACING AFT AND HAS NOT BOTTOMED-OUT AFTER TORQUING. PRIOR TO PACKAGING, RE-CHECK TORQUE ON CLAMPS AFTER PROSEAL 890 SEALANT HAS CURED FOR 72 HOURS.
- 11) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5152-041 WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'NWIPE DEGREASER. INSTALL D5152-041 WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. LOCATE D5152-041 USING TOOL DT10089.
- 12) PRIOR TO FINISHING, ABRASE MATING SURFACES OF CROSSTUBE AND D5305-1 SHIM WITH SCOTCH BRITE 7447 RED AND REMOVE RESIDUE WITH DUPONT 4105S WASH'NWIPE DEGREASER. INSTALL D5305-1 SHIM WITH LAYER OF PROSEAL 890 ON INSIDE CONCAVE SURFACE, 0.1 MIN THK. USE ADDITIONAL TEMPORARY MS21920-24 CLAMP TO APPLY CLAMPING PRESSURE FOR 72 HOURS.

H	ADD D5305-1 SHIM, D6024-103 WAS D6005-103, D5124-1 NOW INSTALLED ON PRIMER	AP	15.10.13
G	FINISHING ORDER ADJUSTED, CR3212-4-08 WAS -.07, CUFF DIA TOLERANCE INCREASED TO +/- 0.005	AP	15.04.24
F	REMOVED PRIME/ PAINT ON CUFFS, 2.516 WAS 2.500 (C8-5)	AP	15.02.03
E	D5152-041 FWD STEP POST ASSY WAS D5150-1 STEP POST, SCOTCH BRITE 7447 RED WAS 180 GRIT SANDPAPER, ANGLE (B7-2) DIMENSIONED FROM NEW DATUM	DB	15.01.15
D	ADD D5150-1 STEP POST (2X), MOVED INSPECTION WINDOW DETAIL TO SHEET 1, MODIFIED NOTES ON SHT 1 & 3	DB	14.11.25
C	CR3212-4-07 RIVETS WERE CR3212-4-09, 7.5 DEG CUFF ANGLE OFFSET REMOVED (SHT 3), CUFF DIAMETER ON D119-796-141 TRN REDUCED TO 2.500, ADDED INSPECTION WINDOW (B7-3), ADDED SHT 4	AP	14.10.23
B	ADDED D2873-043 RADIUS BLOCK, CR3212-4-09 RIVETS, ADDED SKID TUBE REFERENCE FOR LOCATING CUFF HOLES, RE-ORGANIZED NOTES AND REMOVED REDUNDANT INFORMATION	AP	14.09.02
A	NEW ISSUE	AP	14.08.09
REV.	DESCRIPTION	BY	DATE
DESIGN	AP		
DRAWN	AP		
CHECKED	AJS		
MFG. APPR.	JLM		
APPROVED	WM		
DE APPR.	DS		
DATE	15.10.13		

DART AEROSPACE LTD
HAWKESBURY, ONTARIO, CANADA

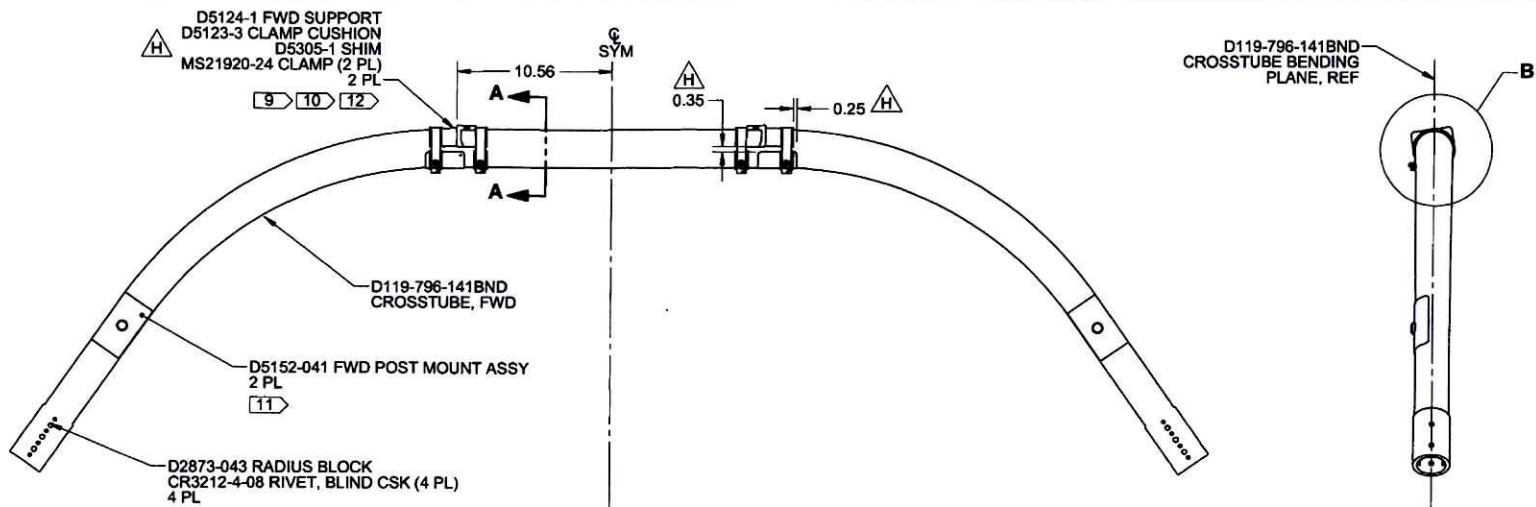
DRAWING NO.
D119-796-141

REV. H
SHEET 1 OF 6

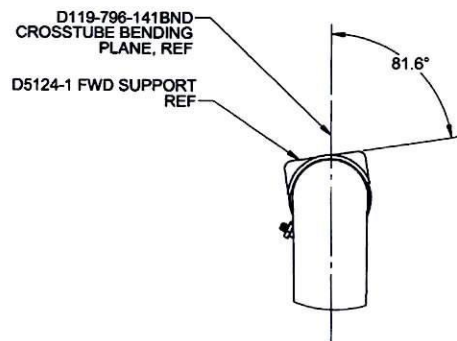
TITLE
XTUBE ASSY (AW119 MKII FWD)

SCALE
NTS

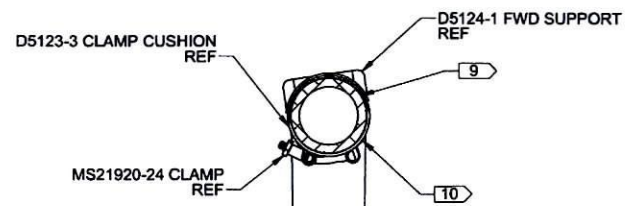
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D119-796-141 XTUBE ASSY (AW119 MKII FWD)



DETAIL B
SCALE 2X

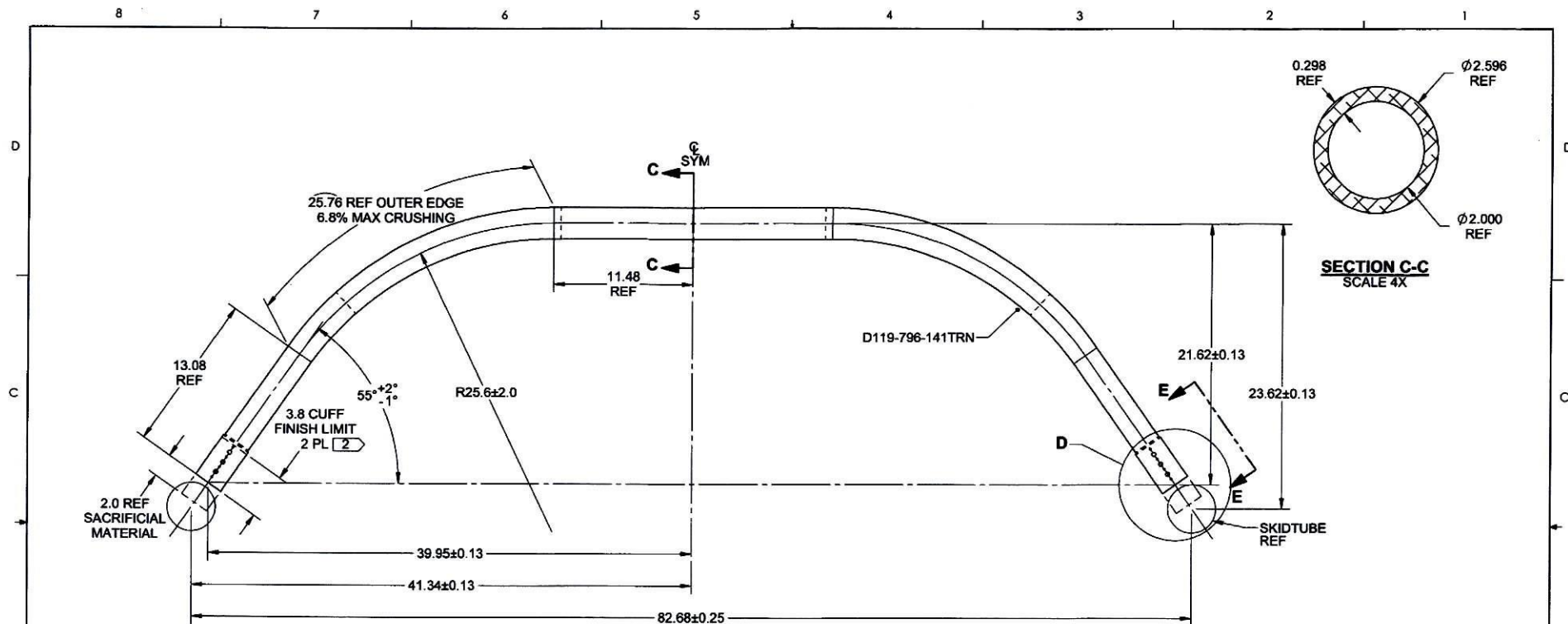


SECTION A-A
SCALE 2X

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2015-11-04

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CHECKED	AJS	DRAWING NO.	REV. H
MFG. APPR.	JLM	D119-796-141	SHEET 2 OF 6
APPROVED	WM	TITLE	SCALE
DE APPR.	DS	XTUBE ASSY (AW119 MKII FWD)	NTS
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D119-796-141BND CROSSTUBE, FWD 9
BENDING AND DRILLING DETAIL

NOTES:

- 1) MATERIAL: MADE FROM D119-796-141TRN
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
PRIME INSIDE AND OUTSIDE PER DART QSI 005 4.2
DO NOT APPLY PRIMER TO CUFFS IN LOCATION SHOWN, MASK PRIOR TO FINISHING
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 16.70 lbs
- 8) PART IS SYMMETRICAL ABOUT CENTERLINE
- 9) BEND PROGRESSIVELY WITH A MINIMUM OF 8 PASSES. MAXIMUM TUBE FLATTENING DUE TO BENDING IS 6.8% BASED ON OD.
- 10) LIQUID PENETRANT INSPECT OUTSIDE SURFACE OF CROSSTUBE PER QSI 038
- 11) EXTREME CARE MUST BE TAKEN TO PROTECT THE OUTSIDE SURFACE OF THE TUBE. THE OUTSIDE SURFACE MUST BE SMOOTH AND FREE FROM DEFECTS SUCH AS SCRATCHES, NICKS OR DENTS. DEFECTS UP TO 0.005 MAY BE BLENDED OUT LONGITUDINALLY. CIRCUMFERENTIAL GRIND MARKS ARE UNACCEPTABLE.

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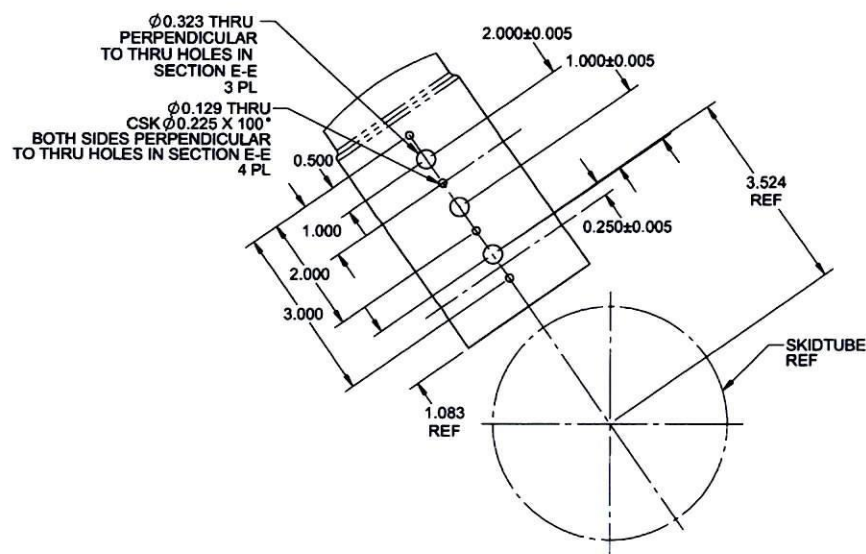
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D

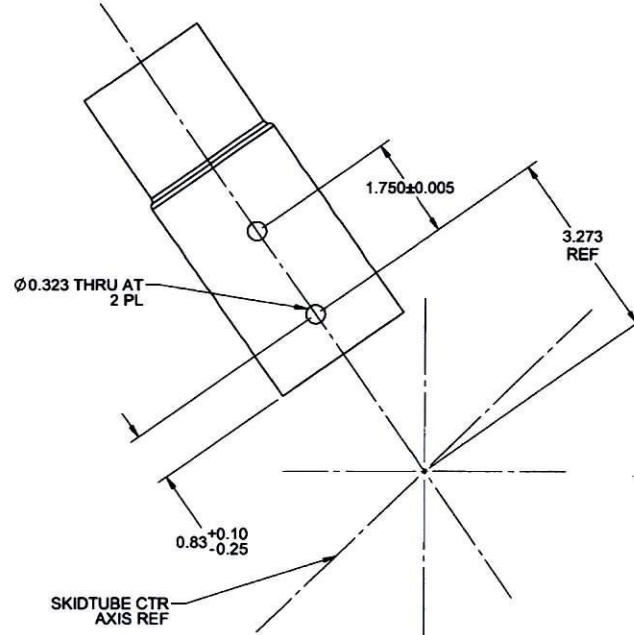
C

B

A



VIEW D
SCALE 4X



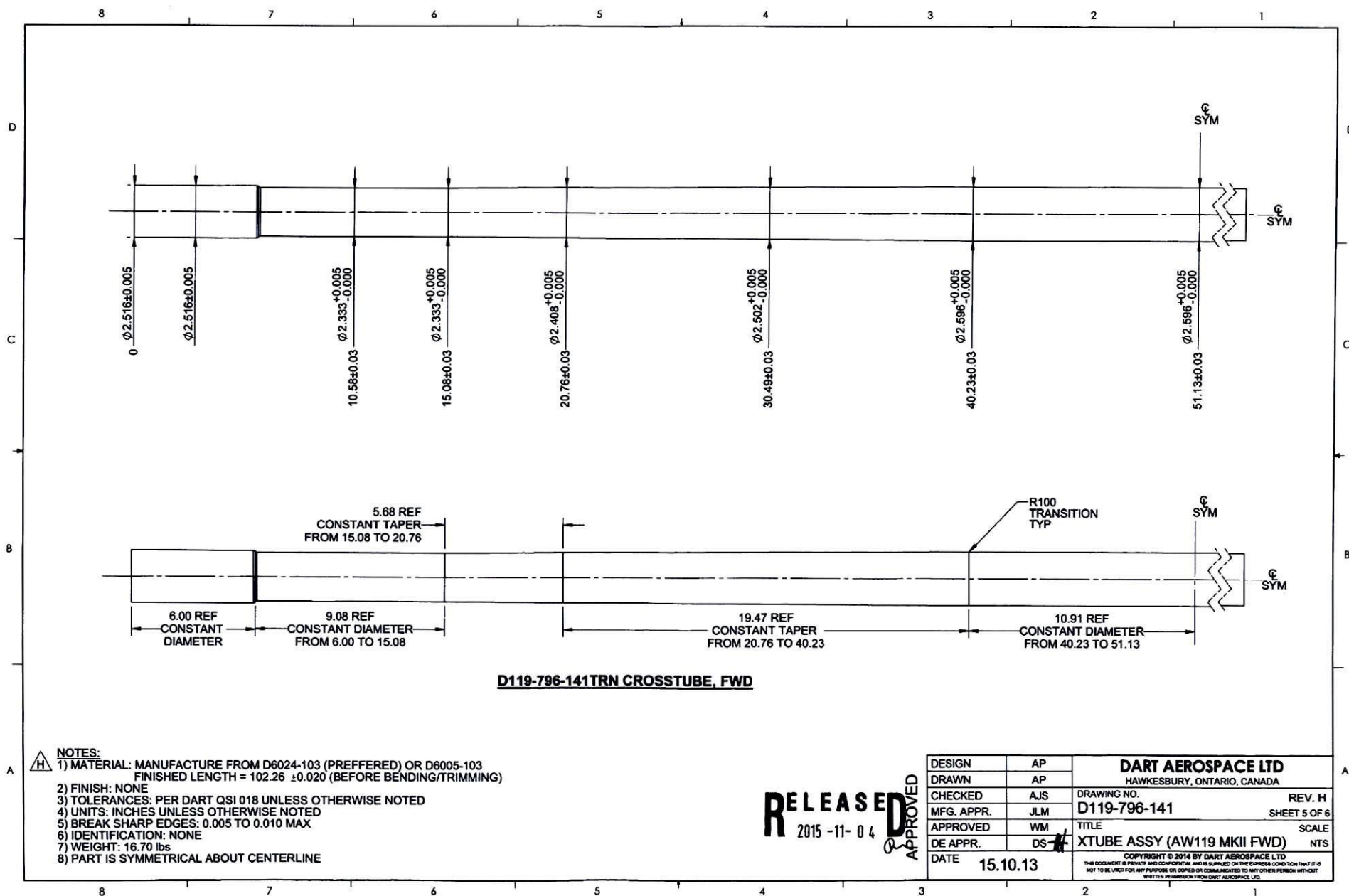
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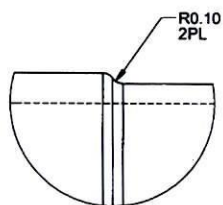
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8 7 6 5 4 3 2 1



D119-796-141TRN CROSSTUBE, FWD
SUPPLEMENTAL VIEW: NOMINAL WALL THICKNESS



DETAIL F
SCALE 2X

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2015-11-04

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